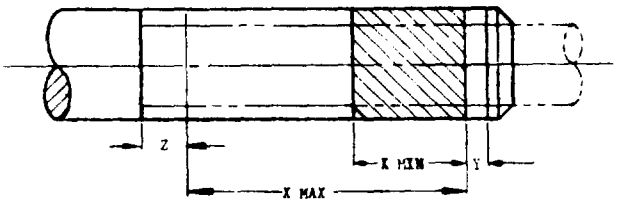
FED. SUP CLASS
5305



THREAD SIZE	X MIN	THREAD SIZE	X MIN	THREAD SIZE	X MIN
4-40	.125	3/8 -24	.208	7/8-14	.357
6-32	.156	7/16-20	.250	1 -12	.417
8-32		1/2 -20		1-1/8-12	
10-32		9/16-18	.278	1-1/4-12	
1/4 -28	.178	5/8 -18			
5/16-24	.208	3/4 -16	.312		

X, MINIMUM REPRESENTS THE MINIMUM LENGTH OF EXTERNAL THREADS REQUIRED FOR ENGAGEMENT WITH COMPLETE INTERNAL THREAD PITCH. THE LOCKING ELEMENT SHALL ENGAGE WITHIN THIS MINIMUM LENGTH AND MEET REQUIREMENTS OF THE LOCKING ELEMENT OR FASTENER SPECIFICATION OR STANDARD APPROVED FOR USE.
X, MINIMUM IS EQUAL TO 5 THREAD PITCHES.

X, MAXIMUM EQUALS THE LENGTH OF COMPLETE THREAD PITCHES BETWEEN Y AND Z.

Y, IS FOR EASE IN STARTING, THE LOCKING ELEMENT SHALL NOT BE EFFECTIVE WITHIN THE AREA OF Y MINIMUM.

Y, MINIMUM EQUALS ONE COMPLETE THREAD PITCH: Y, MAXIMUM EQUALS TWO COMPLETE THREAD PITCHES. THIS DIMENSION SHALL NOT INCLUDE THREAD PITCHES WHICH HAVE INCOMPLETE FORM OR UNTHREADED PORTIONS OF END, THAT IS, CHAMFER AND ANY EXTENSION BEYOND THREAD AREA.

Z, EQUALS ONE COMPLETE THREAD PITCH PLUS THREAD RUNOUT. THE LOCKING ELEMENT OR ANY MACHINE HOLES OR GROOVES FOR THE LOCKING ELEMENT SHALL NOT PENETRATE THIS AREA.

SELF-LOCKING EXTERNALLY THREADED FASTENERS SHALL BE APPROVED DESIGNS AND SHALL BE SUBJECT TO THE FOLLOWING LIMITATIONS:

1. FASTENERS SHALL BE SELECTED AND USED IN A MANNER THAT WILL PERMIT FUNCTIONAL AND DIMENSIONAL INTERCHANGEABILITY WITH A PART THAT HAS ONLY THE ATTRIBUTES DESCRIBED AND DEFINED BY THE APPLICABLE STANDARDS AND SPECIFICATIONS.
2. FASTENERS SHALL BE USED ONLY IN APPLICATIONS THAT PERMIT ENGAGEMENT WITH COMPLETE INTERNAL THREADS OVER THE MINIMUM EXTERNAL THREAD AS DESIGNATED BY X, MINIMUM AS SHOWN ABOVE.
3. SELF-LOCKING EXTERNALLY THREADED FASTENERS SHALL NOT BE USED AS FOLLOWS:
   a. AT JOINTS IN CONTROL SYSTEMS,AT SINGLE ATTACHMENTS, OR WHERE LOSS OF THE FASTENER WOULD AFFECT SAFETY OF FLIGHT.
   b. AS AN AXIS OF ROTATION FOR ANOTHER PART UNLESS THE FASTENER IS HELD BY A POSITIVE LOCKING DEVICE THAT REQUIRES SHEARING OR RUPTURE OF MATERIAL BEFORE TORSIONAL LOADS WOULD BE APPLIED TO THE FASTENER IN SUCH A MANNER AS TO RELIEVE THE INITIAL STRESSES OF THE ASSEMBLY OR TURN THE FASTENER LOOSE.
      EXAMPLES: BEARINGS, BUSHINGS, CLAMP-UP BUSHINGS , PULLEYS, CRANKS, LEVERS, LINKAGES, HINGE PINS, AXLES, SHAFTS, SPINDLES, GEARS, CAMS, CAM FOLLOWERS, SLIDING MECHANISMS, AND PIVOT POINTS.
   c. AT ANY SINGLE BOLTED STRUCTURAL JOINT WHICH SERVES AS A PRIMARY LOAD PATH, THE FAILURE WHICH WOULD ENDANGER THE SAFETY OF PERSONNEL OR WOULD RENDER THE EQUIPMENT INOPERATIVE OR CAUSE ITS DESTRUCTION.
      EXAMPLES: FIXED JOINTS, TIE RODS, STRUCTS (FIXED LENGTH MEMBERS)WING ATTACHMENTS TO FUSELAGE, STABILIZER SURFACE ATTACHMENTS, LONGERON JOINTS, ALIGHTING GEAR JOINTS, AND ENGINE MOUNTS.
(D) 4. FASTENERS WITH MIL-F-18240 SELF-LOCKING ELEMENT DESIGN OR WHICH INCORPORATES AN INSERT OR PART THAT IS NON-METALLIC SHALL NOT BE USED IN PARTS WHERE THE LOCKING ELEMENT WILL ENCOUNTER KEYWAYS, SLOTS, CROSS-HOLES OR THREAD INTERRUPTIONS.
(D) 5. FASTENERS SHALL NOT BE USED TO ATTACH ACCESS PANELS, DOORS, OR TO ASSEMBLE ANY PARTS THAT ARE ROUTINELY DISASSEMBLED PRIOR TO OR AFTER FLIGHT.
6. FASTENERS SHALL NOT BE USED ON JET ENGINE AIRCRAFT IN LOCATIONS WHERE A LOOSE FASTENER COULD FALL OR BE DRAWN INTO THE ENGINE AIR INTAKE SCOOP.
(D) 7. FASTENERS THAT HAVE HAD THE LOCKING DESIGN REWORKED OR REPROCESSED SHALL NOT BE USED.
(D) 8. SELF-LOCKING ELEMENTS CLASSIFIED AS 250° F, 450°F OR 1200° F ARE INTENDED FOR USE AT AMBIENT TEMPERATURE CONDITIONS (-65° F TO +250° F, 450° F OR 1200° F) ARE DESIGNED TO FUNCTION SATISFACTORILY AT TEMPERATURES THRU THESE RANGES.
9. WHEN FASTENERS ARE USED IN APPLICATIONS REQUIRING CONTROLLED TORQUE, SUCH AS CLAMPING MOLDED GASKETS IN FUEL CELLS, CONSIDERATION MUST BE GIVEN TO THE MAXIMUM AND MINIMUM LOCKING TORQUE PERMITTED BY THE LOCKING ELEMENT OR FASTENER SPECIFICATION OR STANDARD APPROVED FOR USE.
10. FOR THE SELF-LOCKING ELEMENT DESIGNS THAT INCORPORATE AN INSERT OR PART THAT IS NON-METALLIC THE ENTERING END OF THREADED HOLES USED IN CONJUNCTION WITH SELF-LOCKING EXTERNALLY THREADED FASTENERS SHALL BE COUNTERSUNK 90 TO 110 DEGREES. THIS COUNTERSINK SHALL HAVE A MINIMUM DIAMETER .010 IN. LARGER THAN THE MAJOR THREAD DIAMETER OF FASTENER. THIS IS TO PREVENT FIRST THREAD FROM CUTTING THE SELF-LOCKING ELEMENT.
(D) 11. UNTHREADED HOLES OR PORTIONS OF HOLES THRU WHICH THE LOCKING ELEMENT OF FASTENER MUST PASS SHALL HAVE A MINIMUM DIAMETER SUFFICIENT TO CLEAR THE LOCKING ELEMENT IF THE SPECIFICATIONS OF THE FASTENER PERMIT THE LOCKING ELEMENT TO PROTRUDE BEYOND THE MAXIMUM MAJOR DIAMETER OF THE THREAD.
(D) 12. SELF-LOCKING EXTERNALLY THREADED FASTENERS SHALL NOT BE USED WITH CASTELLATED NUTS OR SELF-LOCKING NUTS.
(D) 13. SILVER PLATED FASTENERS SHALL NOT BE USED WITH SILVER PLATED NUTS.
(D) 14. SILVER PLATED FASTENERS SHALL NOT BE USED IN TITANIUM AT TEMPERATURES ABOVE 450° F.

THIS IS A DESIGN STANDARD. NOT TO BE USED AS A PART NUMBER.

APPROVED 7 Oct 54 REVISED (A) 20 Jul 59 (B) 10 Jul 61 (C) 6 Jun 63 (D) 27 Oct 67

Review activities:

This military standard is approved by the Department of the Air Force and the Naval Air Systems Command and is mandatory for use by these activities. All other military activities are required to employ this standard where suitable.

P.A. Navy - AS (D) Other Cust USAF - 11	TITLE (D) FASTENERS, EXTERNALLY THREADED, SELF-LOCKING DESIGN AND USAGE LIMITATIONS FOR	MILITARY STANDARD MS15981(ASG)
PROCUREMENT SPECIFICATION NONE	SUPERSEDES: MS15981(AER)	SHEET 1 OF 1

DD FORM 1 SEP 67 672-1 (Limited coordination)

PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE.

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